WHAT IS CLAIMED IS:

1. An AC to DC converter circuit, comprising:

AC input contacts couplable to an AC line voltage, and DC output contacts couplable to a DC load;

a transformer having primary and secondary windings;

a rectifier bridge coupled to the secondary winding;

a DC filter capacitor coupled to the rectifier bridge;

a voltage regulator coupled the DC filter capacitor and to the DC output contacts; and

an AC reactance coupled in a series circuit with the primary winding and the AC input contacts, the AC reactance limiting AC excitation voltage at the primary winding to less than the AC line voltage.

2. The AC to DC converter circuit of Claim 1 wherein the AC reactance comprises an inductor.

3. The AC to DC converter circuit of Claim 1 wherein the AC reactance comprises an AC capacitor.

4. The AC to DC converter circuit of Claim 3 wherein the secondary winding is a center tapped winding, and wherein the rectifier bridge comprises two diodes.

5. The AC to DC converter circuit of Claim 3 wherein the second winding is not a center tapped winding, wherein the rectifier bridge comprises four diodes.

6. The AC to DC converter circuit of Claim 3 wherein the rectifier bridge comprise schottky diodes.

7. The AC to DC converter circuit of Claim 3 wherein the voltage regulator is a series regulator.

8. The AC to DC converter circuit of Claim 3 wherein the voltage regulator is a shunt regulator.

9. The AC to DC converter circuit of Claim 8 wherein the shunt regulator is coupled to the primary winding and shunts current around the primary winding to provide regulation.

10. The AC to DC converter circuit of Claim 8 wherein the shunt regulator is coupled to the secondary winding and shunts current provided by the secondary winding to provide regulation.

11. The AC to DC converter circuit of Claim 8 wherein the shunt regulator is coupled to DC output contacts and shunts DC current to provide regulation.

12. The AC to DC converter circuit of Claim 1 wherein the AC reactance has an impedance that is larger than a primary winding impedance to reduce AC voltage at the primary winding.

13. The AC to DC converter circuit of Claim 12 wherein the primary winding has a reduced number of primary turns commensurate with the reduced AC voltage.

14. The AC to DC converter circuit of Claim 13 wherein the reduced number of primary turns has an increased wire diameter commensurate with an available window size of the transformer.

15. The AC to DC converter circuit of Claim 1 wherein the voltage regulator comprises a switching regulator with a switch that switches at a rate of no more than twice the AC line frequency.

16. The AC to DC converter circuit of Claim 15 and further comprising an inductor coupled in series with the switch for controlling electromagnetic interference.

17. The AC to DC converter circuit of Claim 1 adapted to charge a lithium ion battery.

18. A method of AC to DC conversion, comprising:

providing AC input contacts couplable to an AC line voltage, and DC output contacts couplable to a DC load;

providing a transformer having primary and secondary windings;

providing a rectifier bridge coupled to the secondary winding;

providing a DC filter capacitor coupled to the rectifier bridge;

providing a voltage regulator coupled the DC filter capacitor and to the DC output contacts; and

providing an AC reactance coupled in a series circuit with the primary winding and the AC input contacts, the AC reactance limiting AC excitation voltage at the primary winding to less than the AC line voltage.